

United States District Court
District of Massachusetts

PERKINELMER HEALTH SCIENCES,
INC.,
Plaintiff,
v.
AGILENT TECHNOLOGIES, INC.,
Defendant.

MARKMAN ORDER

GORTON, J.

Plaintiff instituted this action for patent infringement and breach of contract after defendant stopped paying royalties under a license agreement between the parties. The Court now construes certain claims within the patents-in-suit following extensive briefing and a Markman hearing.

I. Background

A. The Parties

Plaintiff PerkinElmer Health Sciences, Inc. ("PerkinElmer") is a Delaware Corporation with its principal place of business in Waltham, Massachusetts. As described in the Court's prior order denying defendant's motion to dismiss (Docket No. 62), Yale University granted a broad, exclusive license to plaintiff to use United States Patent No. 5,130,538 ("the '538 Patent," now expired) and the related patents, United States Patent Nos. 5,686,726 ("the '726 Patent") and 5,581,080 ("the '080 Patent").

As explained further infra, all three patents pertain to the analysis of charged ions through a form of mass spectrometry.

Defendant Agilent Technologies, Inc. ("Agilent") is a Delaware Corporation with its principal place of business in Santa Clara, California. A predecessor-in-interest to plaintiff granted a non-exclusive sublicense ("the Sublicense Agreement") to a predecessor of defendant. Defendant made substantial royalty payments under the Sublicense Agreement for several years until June, 2011, at which time it informed plaintiff that it would no longer make such royalty payments because the '726 and '080 Patents were believed to be invalid due to double-patenting.

B. The Technology

The two patents-in-suit concern a method for conducting "mass spectrometry," a technique used to determine the molecular weight of a chemical compound. Mass spectrometry begins when the subject compound is ionized, i.e. electrically charged, and then exposed to magnetic and/or electrical fields. The ionized particles move differently when exposed to such fields depending upon their mass, i.e. depending upon the ratio of mass to the charge (referred to as the "m/z ratio"). The movements are then charted and the molecular weight of the subject compound can be determined.

The asserted patents specifically teach a method of mass spectrometry involving the use of electrospray ionization ("ESI")

on large, biological molecules. In general terms, the process involves infusing the subject compound with a higher charge (the "z" in the "m/z ratio") by charging the subject ions multiple times, for example, by first charging the compound in a liquid and then again in a gaseous state. Plaintiff asserts that the patented invention permits scientists to study pertinent molecules without destroying the subject compounds, a problem associated with earlier methods. The '080 Patent describes the method by which the ESI technology works while the '726 Patent describes the composition of the matter created during the ESI process which the patentee claims to have invented.

II. Claim Construction

The parties submitted six terms for the Court's consideration. They have stipulated to the construction of three terms but dispute how the other three terms should be construed.

A. Legal Standard

In analyzing a patent infringement action, a Court must 1) determine the meaning and scope of the patent claims asserted to be infringed and 2) compare the properly construed claims to the infringing device. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996). The first step, known as claim construction, is an issue of law for the court to decide. Id. at 979. The second step is determined by the finder of fact. Id.

The claims themselves define the scope of the patented invention. See Phillips v. AWK Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). Claim terms are generally given their "ordinary and customary meaning", which is the meaning that a person skilled in the art familiar with the specification and prosecution history would attribute to the claim term. See id. at 1312-13. The patent specification is "the single best guide to the meaning of a disputed term" because it may reveal "a special definition given to a claim term that differs from the meaning it would otherwise possess" or contain "an intentional disclaimer, or disavowal, of claim scope by the inventor." Id. at 1314. The Court should also consult the prosecution history to see how the inventor and PTO understood the patent and to make sure that patent owner does not argue in favor of an interpretation it has already disclaimed during the prosecution stage. Id. at 1317.

In the rare event that analysis of the intrinsic evidence does not resolve an ambiguity in a disputed claim term, the Court should turn to extrinsic evidence, such as inventor and expert testimony, treatises and technical writings. Id. at 1314. Although extrinsic evidence may be helpful in construing claims, the intrinsic evidence should be afforded the greatest weight in determining what a person of ordinary skill would have understood a claim to mean. Id. at 1324.

B. Disputed Claim Terms

The disputed terms appear within several claims of both the '080 and '726 Patents. For purposes of context, some of the disputed terms are set forth as they appear in two representative claims, with the disputed terms highlighted:

U.S. Patent No. 5,686,726 (Claim 1)

A composition of matter comprising a population of **multiply charged** polyatomic ions derived from a distinct polyatomic parent molecular species, all molecules of said distinct polyatomic parent molecular species having substantially the same molecular weight and chemical identity, the number of charges on each ion in said population of **multiply charged** polyatomic ions defining that ion's charge state number, said population of multiply charged polyatomic ions comprising a plurality of sub-populations of ions, all the ions of each of said sub-populations having the same charge state number, said same charge state number differing from the charge state numbers of the ions in the other sub-populations of said plurality of sub-populations, said plurality of sub-populations comprising one sub-population for each value of charge state number beginning with a smallest value not less than three and extending to a largest value not less than five.

U.S. Patent No. 5,581,080 (Claim 50)

A method for determining the molecular weight of molecules by producing a population of multiply charged ions for detection by a mass analyzer, wherein all members of said population **with a molecular weight greater than 5000** have at least three charges per ion, comprising the steps of:

supplying a solution containing as a solute at least one distinct polyatomic parent molecular species **with a molecular weight greater than 5000 daltons**, all molecules of each of said distinct polyatomic parent molecular species having substantially the same molecular weight;

dispersing said solution into a gas in the presence of an

electric field to form charged droplets; and, evaporating said charged droplets until at least some molecules of at least one of said distinct polyatomic parent molecular species become dispersed as **multiply charged** ions in a gaseous phase.

C. Construction of Disputed Terms

As noted supra, the parties have proposed stipulated constructions for three claim terms. Those stipulated constructions will be adopted. The Court construes the remaining disputed terms as follows:

1. "multiply charged"

The parties agree that the term "multiply charged," which appears throughout both of the patents-in-issue, requires construction but disagree on that construction in two material respects: 1) whether "multiply" should be construed as "three or more charges" or does not need to be construed at all and 2) whether "charged" refers only to "ions" or also refers to "polar atoms or groups bearing charge or bearing charged species." The Court adopts the latter construction in both instances.

The prosecution histories of both the '726 and '080 Patents contain statements by the inventor and the examiner that the claimed inventions concern sub-populations of ions with three or more charges, distinguishing it from the prior art that concerned subgroups with only one or two charges. That evidence persuades the Court that the inventors disclaimed application of the inventions to sub-populations of one or two charges and thus

plaintiff is foreclosed from arguing to the contrary. See Phillips, 415 F.3d at 1317 (as discussed supra).

Plaintiff's disclaimer is, however, reflected in other language within the claim term and does not need to be imported into the meaning of "multiply." Claim 1 of the '726 Patent, reproduced supra, specifies that the invented matter comprises sub-populations of charged atoms having a minimum "charge state number ... not less than three." Claim 1 of the '080 Patent similarly specifies that the charged sub-populations do not have a charge state number "less than three." The prosecution history and the claim terms are thus in alignment, rendering construction of the term "multiply" unnecessary and contrary to the established canon that construction should give meaning to every limitation of a claim. See Bicon, Inc. v. Straumann Co., 441 F.3d 945, 950-51 (Fed. Cir. 2006) (reading limitations out of claim violates principle that "claim language should not be treated as meaningless" and contravenes specification).

The second debate concerns whether "multiply charged" refers solely to ions or to ions and "polar atoms." Convoluted as it may seem, the intrinsic evidence supports the latter construction. When summarizing the invention in the specification, the '726 Patent teaches that "this multiple charging phenomenon" can be produced from large and complex molecules, other than proteins, provided that, if the subject

molecules are not themselves ions, they "contain polar atoms or groups . . . to which the charge bearing species can attach". The same language is repeated in the specification of the '080 Patent. In light of the description in the specifications of both patents, the ordinary and customary meaning of "multiply charged" fairly encompasses both ions and "polar atoms." See Phillips, 415 F.3d at 1312-13. The Court will therefore adopt plaintiff's proposed construction.

2. Molecular Weight Descriptions

Defendant argues that the descriptions of molecular weight, used in claims of both the '726 and '080 Patents, as "not less than 5000," "not less than about 5000" and "greater than 5000," should be construed to mean that the molecular weight involved has no upper limit. Defendant's position is, in essence, that the failure to specify a maximum molecular weight is an affirmation that none exists. The Court disagrees.

The meaning of the claim language at issue is not informed by the case law. Defendant particularly relies upon MagSil Corporation v. Hitachi Global Storage Technologies, Incorporated, 687 F.3d 1377 (Fed. Cir. 2012). That case concerns hard disk storage technology in which the Federal Circuit affirmed the District Court's grant of summary judgment on MagSil's infringement claims because the subject patent was not "enabling" under 35 U.S.C. § 112. Id. at 1377. The District Court had

construed "a change in resistance of at least 10%" to mean at least 10%, where the percentage was determined by a mathematical expression and subsequently found that the term encompassed resistance changes "up to infinity". Id. at 1381 (citation omitted). The Federal Circuit approved that construction because the term had a "lower threshold, but not an upper limit." Id. at 1383. The case does not, however, stand for the proposition that "at least 10%" or other phrases identifying only a minimum value preclude the finding of an upper limit and such an argument is readily refuted. See, e.g. Adams Respiratory Therapeutics, Inc. v. Perrigo Co., 616 F.3d 1283, 1291 (Fed. Cir. 2010) (noting, without disapproval, that district court construed "at least" to indicate "an absolute lower limit").

Use of percentages or mathematical expressions such as "not less than" or "greater than" can plausibly mean that there is no upper bound with respect to a claim term but the intrinsic evidence presented here implies the existence of some upper limit. The patented technology concerns mass spectrometry with a particular focus on the measurement of biological matter, citing proteins as an example. The largest known proteins at the time of patenting had a high, but definite, mass, approaching four million daltons (the unit of measurement used in the patents) and neither party suggests that molecules with infinite mass did, or could, exist.

Ultimately, the disputed terms here provide an example which "as understood by a person of skill in the art [is] readily apparent even to lay judges." Phillips at 1314. The Court therefore rejects defendant's proposed construction and declines to construe the terms beyond their ordinary meaning.

3. Terms within Preamble

Defendant asserts that two terms in the preambles of the disputed claims, i.e. "a composition of matter" in the '726 Patent and "a method of determining molecular weight" in the '080 Patent, are not limiting as required. The Court concludes that the preambles to the claims of the '726 Patent are limiting but the preambles to the claims of the '080 Patent are not.

A preamble should not be construed if it states no new limitation outside the body of the claim but "merely states, for example, the purpose or intended use of the invention." Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999). It need be construed only if it recites information "necessary to give life, meaning, or vitality" to the claim, such as when

- 1) it is essential to understanding the limitations or terms in the claim body,
- 2) it recites additional structure or steps underscored as important by the specification,
- 3) a party relied on it during the prosecution to distinguish the claimed invention from prior art, or
- 4) it provides the antecedent basis for a limitation in

the body of the claim in a manner that "indicates a reliance on both the preamble and claim body to define the claimed invention."

Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808-09 (Fed. Cir. 2002).

With respect to the '726 Patent, the inventors relied upon the discovery of a "new composition of matter" during prosecution in order to overcome an initial rejection of their application by distinguishing the '726 Patent from their own prior art, namely, the '538 Patent. That prior art concerned a method for producing multiply charged ions. In contrast, the '726 Patent purports to patent compounds as they exist while under mass analysis and in their multiply charged state, a state which has not previously occurred because the subject compounds have never been charged to the degree achieved by the inventors. While the preamble phrase "a composition of matter" undoubtedly categorizes the patented material, in this case the prosecution history makes clear that the inventors have relied upon it to obtain the new patent.

Similar evidence of reliance upon "a method of determining the molecular weight" during prosecution of the '080 Patent appears lacking. Although plaintiff argues that the preamble provides the antecedent basis for understanding the claim terms, invocation therein of the phrase "a mass analyzer" adds nothing to the reference within the body of the claim to "said mass analyzer." Accordingly, while it may be an antecedent basis for

the reference, the preamble phrase does not "define the claimed invention."

ORDER

In accordance with the foregoing,

- 1) the term "biopolymer" means: "Large molecules found in biological systems (such as proteins, nucleic acids and polysaccharides) that comprise linked subunits (such as amino acids, nucleotides, and sugars)";
- 2) the term "Coherent sequence of peaks ... immediately adjacent peak in said coherent sequence" means: "A series of peaks of a mass spectrum corresponding to a sequence of charge states in which each peak can be resolved and represents ions having the same mass-to charge ratio, where the charge state numbers of the ions in each peak are greater than one, and the charge states of adjacent peaks differ by one charge";
- 3) the terms "values of mass/charge (m/z)" and "mass/charge (m/z) values" mean: "Values calculated by dividing the mass of an ion by its charge";
- 4) the term "multiply charged" means: "With multiple polar atoms or groups bearing charge or bearing charged species";
- 5) the terms describing molecular weight as "not less than 5000," "not less than about 5000" and "greater than 5000," imply the existence of an upper bound but do not require further construction; and
- 6) the preambles to the claims of the '726 Patent are limiting but the preambles to the claims of the '080 Patent are not.

So ordered.

/s/ Nathaniel M. Gorton
Nathaniel M. Gorton
United States District Judge

Dated June 5, 2013